UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,528	06/10/2005	Eltjo Hans Haselhoff	PHNL030375US	7013

38107 7590 10/25/2007

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND, OH 44143

EXAMINER	
ABDI, AMARA	
ART UNIT	**PAPER NUMBER**
2624	

MAIL DATE	DELIVERY MODE
10/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,528	HASELHOFF ET AL.	
	Examiner	Art Unit	
	Amara Abdi	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 7-111* is/are rejected.

7)☒ Claim(s) *4 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/10/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claims 1,2,3,4,5. See MPEP § 608.01(n). Accordingly, the claim 6 is not been further treated on the merits.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The claimed invention is directed to non-statutory subject matter. Claims 8-9 are rejected.

(a) In claim 8, "Software" must be "computer readable medium encoded with software" in order to be statutory.

(b) The claim 9 is directed entirely to the data carrier and do not define any functional interrelationships between any of the data elements that make up the "database". Consequently, the claim merely defines the data per se, and do not define functional description material capable of imparting useful functionality to a general-purpose computer or derive. Furthermore, the "Software" that was introduced in claim 9 is not statutory subject matter.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3,5, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saranathan et al. (US-PGPUB 2002/0095085) in view of Epstein et al. (US 5,997,883).

(1) Regarding claim 1:

Saranathan et al. disclose a system for processing a series of image frames representing a cardiac cycle (paragraph [0042], line 3-5), at least comprising input or data collection means for collecting the series of image frames (paragraph [0031], line 6-11), a memory inter alia for storing and retrieving said series of image frames (paragraph [0024], line 12-13), a processor for processing the frames (paragraph [0027], line 14-15), and display means (paragraph [0027], line 16), whereby the processor processes the frames to identify from said series of images a frame or frames representing a pre-determined phase of the cardiac cycle (paragraph [0028], line 3-5), (the acquiring of a set of frames is read as the same concept as the identifying of series of images a frame or frames representing a pre-determined phase of the cardiac cycle).

Saranathan et al. do not explicitly mention, that the processor compares images from said series of image frames and establishes a measure of identity between such

frames, whereby the processor applies said measure of identify to identify the phase of the cardiac cycle pertaining to such frames.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where the processor compares images from said series of image frames and establishes a measure of identity between such frames (column 7, line 56-59), (the correlation of each cardiac phase images with a specific cardiac cycle is read as the same concept as the comparing of frames to establish the identity among them), whereby the processor applies said measure of identify to identify the phase of the cardiac cycle pertaining to such frames (column 8, line 34-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where identifying a frame from a series of images, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(2) Regarding claim 2:

Saranathan et al. disclose all the subject matter as described in claim 1 above.

Furthermore, Saranathan et al. disclose the selecting from the series of images the frames showing the highest value of the measure of identity as pertaining to the systolic resting phase and the diastolic resting phase of the cardiac cycle (paragraph [0041], line 1-9), (the peak is read as the highest value of the measure of identity).

Saranathan et al. do not explicitly mention the comparing of consecutives frames from the series of images.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where comparing of consecutives frames from the series of images (column 7, line 56-59, and column 8, line 11-12), (the comparing is read as the same concept as correlating).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where comparing the consecutives frames from the series of images, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(3) Regarding claim 3:

Saranathan et al. disclose all the subject matter as described in claim 2 above.

Saranathan et al. do not explicitly mention the system, where the processor compares pairs of consecutive frames.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where processor compares pairs of consecutive frames (column 3, line 54-57), (the comparing is read as the same concept as correlating, and the consecutive frames is read as the same concept as the successive cardiac cycle).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where comparing the consecutives frames from the series of images, in the system of Saranathan et al. in

order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(4) Regarding claim 5:

Saranathan et al. disclose all the subject matter as described in claim 1 above.

Saranathan et al. do not explicitly mention the system, where the processor compares the frames by executing a cross correlation function with regard to such frames, whereby it assigns the value resulting from the cross correlation as representing the measure of identity.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where the processor compares the frames by executing a cross correlation function with regard to such frames, whereby it assigns the value resulting from the cross correlation as representing the measure of identity (column 7, line 56-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where processor executes a cross correlation function, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(5) Regarding claim 7:

Saranathan et al. further disclose a system, characterized in that the pre-selected area is the right coronary artery and its immediate surroundings (paragraph [0030], line 1-3).

(6) Regarding claim 8:

Saranathan et al. disclose software (the software is read as program) for use is conjunction with a processor for processing a series of image frames in order to identify from said series of images a frame or frames representing a pre-determined phase of the cardiac cycle (paragraph [0028], line 3-5), (the acquiring of a set of frames is read as the same concept as the identifying of series of images a frame or frames representing a pre-determined phase of the cardiac cycle).

Saranathan et al. do not explicitly mention that the system includes an algorithm to establish a measure of identify between frames of the series of image frames, and to determine from said measure of identity the phase of the cardiac cycle to which the frames relate.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where the system includes an algorithm (column 5, line 30), (the algorithm is read as a program) to establish a measure of identify between frames of the series of image frames (column 7, line 56-59), (the correlation of each cardiac phase images with a specific cardiac cycle is read as the same concept as the establishing of a measure of identity between frames of the series of image frames), and to determine from said measure of identity the phase of the cardiac cycle to which the frames relate (column 8, line 34-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where the system includes an algorithm to establish a measure of identify between frames of the series of image

frames, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(7) Regarding claim 9:

Saranathan et al. further disclose a data carrier embodied with software according to claim 8 (paragraph [0010], line 10-12), (the MR data is read as a data carrier).

(8) Regarding claim 10:

Saranathan et al. disclose a method (paragraph [009], line 2) for processing a series of image frames representing a cardiac cycle in order to identify from said series of images a frame or frames representing a pre-determined phase of the cardiac cycle (paragraph [0028], line 3-5), (the acquiring of a set of frames is read as the same concept as the identifying of series of images a frame or frames representing a pre-determined phase of the cardiac cycle).

Saranathan et al. do not explicitly mention the method, where the images from said series of image frames are compared to establish a measure of identity between such frames and that the measure of identity is used to identify the phase of the cardiac cycle pertaining to such frames.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where the images from the series of image frames are compared to establish a measure of identity between such frames (column 7, line 56-59), (the correlation of each cardiac phase images with a specific cardiac cycle is read as the same concept as the comparing of image frames to

establish a measure of identity between frames), and that the measure of identity is used to identify the phase of the cardiac cycle pertaining to such frames (column 8, line 34-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where the images from said series of image frames are compared to establish a measure of identity between such frames, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

(9) Regarding claim 11:

Saranathan et al. disclose all the subject matter as described in claim 10 above.

Furthermore, Saranathan et al. disclose the selecting from the series of images the frames showing the highest value of the measure of identity as pertaining to the systolic resting phase and the diastolic resting phase of the cardiac cycle (paragraph [0041], line 1-9), (the peak is read as the highest value of the measure of identity).

Saranathan et al. do not explicitly mention the comparing of consecutives frames from the series of images.

Epstein et al., in analogous environment, teaches a retrospective ordering of segmented MRI cardiac data using cardiac phase, where comparing the consecutives frames from the series of images (column 7, line 56-59, and column 8, line 11-12), (the comparing is read as the same concept as correlating).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Epstein et al., where comparing the

consecutives frames from the series of images, in the system of Saranathan et al. in order to reduce image blurring in fast segmented k-space and CINE acquisitions (column 3, line 58-59).

Allowable Subject Matter

6. Claims 4 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information:

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
10/17/07

JINGGE WU
SUPERVISORY PATENT EXAMINER